CLAIMS:

1. Use of an organic semi-conducting compound for detecting NO.

2. Use according to claim 1, wherein said organic semi-conducting compound is a compound having at least two conjugated double C=C bonds, and further, optionally, comprises a reactive nitrogen, sulfur or other heteroatom in its structural formula.

3. Use according to claim 1 or 2, wherein said semi-conducting compound is selected from pentacene, poly(phenylene vinylene), aromatic amines, or a thiophene, preferably pentacene.

4. Use according to claim 3, wherein said thiophene is polyethylene dioxide thiophene.

5. A process for measuring the amount of NO in a gas mixture containing NO, wherein said amount of NO is measured by using an organic semi-conducting compound, of which the electrical property changes upon reaction with NO, said change being utilized as a direct or indirect measure of the amount of NO being present in said gas mixture.

6. A process according to claim 5, wherein said gas mixture is a respiratory gas mixture, inhaled or exhaled by a human being.

7. A process according to claims 5 or 6, wherein said organic semi-conducting compound has at least two conjugated double C=C bonds, and further, optionally, comprises at least one reactive heteroatom, selected from nitrogen, sulfur and oxygen.

8. A process according to any of the claims 5 to 7, wherein said organic semi-conducting compound is selected from pentacene, poly(phenylene vinylene), aromatic amines, or a thiophene, preferably pentacene.

9. A process according to any of the claims 5 to 8, wherein said change of the electrical property of the semi-conducting compound is detected by using a FET type element.

10. A process according to any of the claims 5 to 9, wherein said change of the electrical property is measured as a change of the conductance of said semi-conducting compound or a change in gate potential of the FET type element.

11. A sensor for monitoring NO in a gas mixture, comprising a chemically sensitive element having electrical properties which change upon reaction with a gas, said element comprising an organic semi-conducting compound having a conjugated structure which changes upon reaction with NO, such that it becomes electrically conducting.

12. A sensor according to claim 11, wherein said chemically sensitive element is a field-effect transistor (18) having at least one drain (1) and at least one source (2), and containing a layer (4) of an organic semi-conducting compound having a conjugated backbone, extending between the source and the drain of said transistor.

13. A sensor according to claims 11 or 12, wherein said semi-conducting compound is selected from pentacene, poly(phenylene vinylene), aromatic amines, or a thiophene, preferably pentacene.

14. A sensor according to claim 13, wherein said thiophene is polyethylene dioxide thiophene.

15. A sensor according to any of the claims 11 to 14, wherein said sensor is configured as a nanoscale FET-type element, such as a carbon nanotube or nanowire, the organic semi-conducting compound being present as a coating of said element.

16. A sensor according to any of the claims 11 to 15, wherein said organic semi-conducting layer is at least partially coated with a NO-selective, electrically conducting compound.

17. A FET type element (18) comprising a source (1) and a drain (2), as well as a layer (4) of an organic semi-conducting compound which can react with NO such as to change the electrical property thereof.

18. A FET type element according to claim 17, wherein said organic semi-conducting compound has a conjugated backbone, and optionally comprises a reactive nitrogen, sulfur or other heteroatom in its structural formula.

19. A FET type element according to claims 17 and 18, wherein said organic semi-conducting compound is selected from pentacene, poly(phenylene vinylene), aromatic amines, or a thiophene, preferably pentacene.

20. A device for determining the NO content of an air mixture such as exhaled air, comprising:

- a measuring chamber (15) for measuring the NO content in a volume of air,
- said measuring chamber being provided with an NO sensor capable of producing a sensor reading on the basis of the NO content,
- a signal processor (17) having a signal input coupled to said NO sensor, and being adapted to calculate the NO content on the basis of the sensor reading,

wherein said NO sensor is a sensor according to any of the claims 9 to 15.

21. A device (9) for determining the NO production during breathing, comprising:

- a first conduit (10) associated with a first measuring chamber (15) accommodating a first sensor,
- a second conduit (11) associated with a second measuring chamber (16) accommodating a second sensor,
- a common conduit (12) having an inlet (13) for positioning proximate to a person,
- a valve means (14) coupled to the first, second and common conduits, which is sensitive to a relatively low pressure in said common conduit to selectively connect the common conduit with the first conduit, and sensitive to a relatively high pressure in said common conduit to selectively connect the common conduit with the second conduit,
- a signal processor (17) having at least a first signal input coupled to the first sensor, and a second signal input coupled to the second sensor, and being adapted to calculate

the NO production on the basis of the difference, or any other algorithms, between the reading of the first sensor and the reading of the second sensor,
wherein said first and second measuring chamber (15,16) are provided with at least one NO sensor as defined in claims 11 to 16.

22. A device according to claim 20 or 21, wherein the measuring chamber (15,16) comprises an array of NO sensors, as defined in claims 11 to 16, coupled to one another to produce one reading.

23. A device according to claim 22, wherein in said array of sensors, the amount of organic semi-conducting compound and/or the dopant concentration therein increases from the first sensor to the last sensor in said array, viewed in the direction of flow of the sample of air.